

# Crane Safety 2003

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I appreciate this opportunity to discuss and promote crane safety. I appreciate API sponsorship of the workshop. It is very good to see this strong attendance. This participation by industry will help a renewed focus on crane safety.

Let me set the stage for crane safety by talking about safety in the OCS in general.

# GOM Safety Statistics

	1998	1999	2000	2001	2002	2003*
Fatalities	14	5	5	7	6	1
Injuries	66	47	63	56	55	11
Loss of Well Control	7	5	9	7	6	3
Collisions	5	10	7	16	12	3
Explosions	4	7	1	4	4	2
Fires	90	74	96	79	92	29
Significant Pollution	8	4	3	1	3	3

Source: TIMS database as of May 21, 2003

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The number of fatalities remains too high.

The number of injuries remains high,

# **MMS Mission**

## **Safe and Clean Operations**



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As stewards of more than a billion offshore acres, where some 30,000 personnel work offshore, the MMS regards the safety of personnel, of the environment, and of operations as its top priorities. MMS devotes constant attention to safety through engineering reviews of plans and permits, training, inspections and, if necessary, shut-in of operations, or assessment of penalties for failure to comply with the regulations.

Today, we want to focus specifically on crane operations.

From 1998 to May, 2003, we have seen 70 crane related incidents that resulted in 9 fatalities and numerous serious injuries. MMS and industry recognized this dangerous trend early on and partnered in sponsoring a crane safety workshop which was held in March 2000 that focused on best work practices. Based on trends, industry and MMS saw the need for a second crane safety workshop which was held in April 2001 that focused on the safe operation of platform cranes. The objective of both of these workshops was to improve the safety of crane operations on offshore drilling and production platforms. Industry continues to experience crane related incidents and these incidents are one of the reasons we are here to today.

What I would like to do is impart to you what MMS has seen since the last workshop.

# INSPECTION PROGRAM



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Inspectors evaluate the overall condition and compliance record of a particular facility and its operations, including safety, pollution prevention, metering equipment, and cranes.

There are currently 19 Potential Incidents of Non-Compliance (PINCs) that MMS inspectors review during an inspection of a fixed platform crane. These PINCs cover required inspections, maintenance, and operator/rigger qualifications as mandated by the regulations which incorporate API RP 2D (4<sup>th</sup> Ed.) – Recommended Practice for the Operation and Maintenance for Offshore Cranes.

171 Crane INCs were issued in 2001. In 2002 another 128 INCs were issued and to date 37 Crane INCs have been issued in 2003. Of the 336 total INCs associated with cranes and material handling, 5 have resulted in civil penalty assessments.

# ACCIDENT INVESTIGATIONS

## ➤ 30 Crane related incidents

## ➤ Trends

- Contact with personnel
- Contact with other equipment
- Mechanical failure

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Since 1998 MMS has placed a greater emphasis on investigating crane incidents in a effort to identify trends. We are going to recap those events that were discussed in the previous workshops.

Since 2001 to 2003 year to date, we have seen 30 crane incidents. These incidents have involved one fatality, personnel injuries, crane failures, overloading the crane, personnel basket incidents

Approximately half of the injuries occurred when personnel were either struck by the load or while being lifted by the personnel basket.

There were 5 cases where property damage occurred due to operator error

There were 8 cases caused by mechanical failure of the crane.

# Trends

## ➤ Temporary Cranes

- Four incidents
- One fatality
- Three near misses

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One trend observed has been the substantial number of incidents surrounding the use of temporary cranes.

There have been four events in the last 18 months that have resulted in one fatality and three near misses.

The next few slides will discuss some of these events.

Let me say that the near misses could just as easily have been catastrophic events.

We have identified the use of temporary cranes has a high risk activity and we have been cautioning operators during the annual performance reviews about their use of temporary cranes.

**WC 620**

**May 2, 2001**



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This is the first of four recent incidents that I want to review with you.

This 100-Ton crane was being used to lift an 89,000-pound compressor off of a workboat

During the lift a hydraulic hose on the boom cylinder ruptured causing the boom to cradle then fail.

In the course of the investigation, a contributing root cause was determined to be that the failed hydraulic hose was not run in a manner to ensure full unrestricted flow. The hose had a sharp elbow which may have been restricting flow causing it to overpressure.

**WC 620**

**May 2, 2001**



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This is the same 100-ton crane with the view from the operator's seat.

Look at the weight indicator. Do you see the duct tape holding the weight indicator?

The roll of tape is down in the bottom portion of the picture.

Is this an indication of how this rental crane is operated and maintained??

**May 6, 2002**



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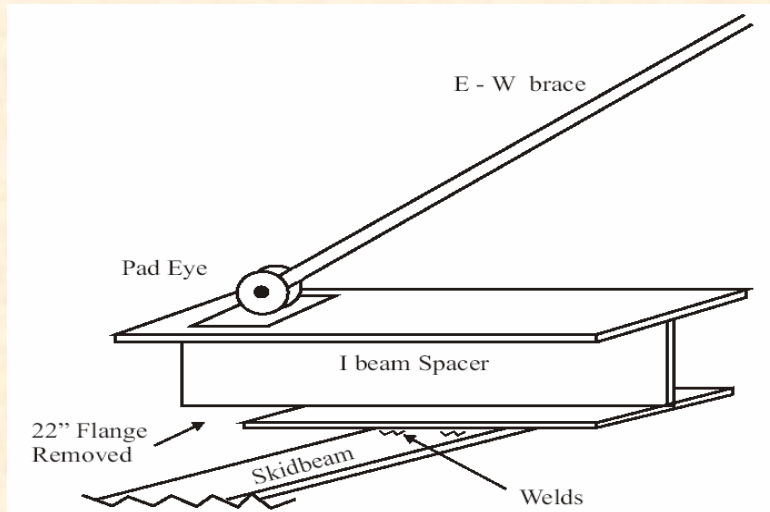


This particular king-post style crane was not involved in an incident, however, a similar one was involved in an incident which resulted in a fatality.

The details of the incident are better defined in the next slide.

**MP 255**

**May 6, 2002**



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The crane was installed in a manner where one of the braces was positioned in a cantilevered manner on an additional I-beam.

As the load was swung in the direction directly opposite this support brace, the support brace failed, allowing the crane to strike and fatally injure one of the crew. The crane and the crewmember fell overboard into the water.

During the investigation, it was discovered that no engineering analysis was done on the use of the cantilevered position of the support brace. The investigation also found that there were no procedures for the proper installation of this style crane.

MMS published an investigation report – OCS Report MMS 2002-076 if anyone is interested in further details of this event.

**MP 265**

**August 5, 2002**



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Here is MP265.

This temporary knuckle-boom crane was intended to be used to change out the engine on the existing platform crane.

While attempting the lift, the crane fell over, sliding across the deck into the handrail.

The crane came to rest against the handrail with the boom dangling over the side of the platform. The line snapped and the load fell into the gulf.

There were no injuries and the crane was secured to the deck.

The root cause of the incident was that the crane was not properly secured to the deck using the crane's hydraulic locking mechanism.

Other findings from the investigation include that the operator failed to perform an installation inspection, a pre-use inspection, and a load test, and that the platform operator failed to provide the crane operator with the weight of the load being lifted.

There were no written installation and operating procedures for the temporary crane.

**MP 265**

**August 5, 2002**



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A different view of the knuckle-boom crane.

**POCS**

**May 4, 2003**



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This incident occurred on the Pacific OCS and involved the friction-type crane.

The crane operator was attempting to make a lift when the clutch started slipping allowing the boom to fall and impact the handrail and deck.

This incident is still under investigation.

## Current Efforts

### ➤ RP 2D (5<sup>th</sup> Edition)

- Requires refresher training for riggers
- Outlined new qualifications for crane inspectors
- Clarifies definitions of “load test” and “pull test”

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The 4<sup>th</sup> edition of 2D, which was published in August 1999, and incorporated into the regulations in March 2000, outlined the training requirements for riggers and operators.

MMS published NTL 2002-N06 – Guidelines for Crane Load Tests and Recordkeeping on Fixed Offshore OCS Facilities, to clarify the requirements for conducting load tests as outlined in 2D. Emphasis was also placed on the use of temporary rental cranes. Also, clarified in this NTL was the requirements for the wire rope test certificate from the wire rope manufacturer.

Since the publication of the 4<sup>th</sup> edition, MMS has been working with API and industry to identify problem areas with the operation and maintenance of offshore cranes. The 5<sup>th</sup> edition of 2D is a culmination of those efforts.

Without going into great detail, I will just hit the high points of the 5<sup>th</sup> edition. Currently still in the draft form, the 5<sup>th</sup> edition now requires refresher training for riggers every 4 years. Another change is the new qualification requirements for crane inspectors. The 5<sup>th</sup> edition also clarifies the definitions of “load test” and “pull test”.

The new 2D will be discussed in more detail later on in the workshop.

# Current Efforts

## ➤ Spec 2C

- Establish detailed requirements for the design and construction of pedestal mounted cranes for new OCS fixed platforms.
- Includes minimum requirements for equipment, materials, manufacturing procedures, testing that are not covered in RP 2D.

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MMS incorporated API Specification 2C into the regulations to establish a minimum design and construction standard for pedestal mounted cranes installed on fixed platforms on the OCS after the effective date of March 17, 2003. This standard includes minimum requirements for equipment, materials, manufacturing procedures, and testing that are not covered in API RP 2D.

The rule also requires lessees to equip all existing cranes on fixed platforms with anti-two block safety devices.

This rule will ensure that OCS lessees use the best available and safest technologies for the design and construction of future cranes installed on the OCS.

Spec 2C will also be discussed in detail, later on in the workshop.

## Crane Accident on Norwegian OCS

### ➤ Norwegian Safety Alert

- MMS Safety Alert #209
- Recommends that any container of similar design should not be stacked.



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Lastly, the US is not the only one having problems with cranes.

Recently, a person was killed in an accident during a lifting operation on the Norwegian continental shelf.

Two chemical pods had been stacked on top of each other. Preparations were being made to move the upper pod onto the deck by means of the crane. During the lifting operation, the pendant which was not connected to the pod slings, got stuck between the pods frame work and the pod. By lifting the pendant, it snagged the frame causing the pod to slide, and fell down and fatality crushed the employee.

**It is strongly recommended that any container of similar design should not be stacked.**



Hopefully this overview has helped set the stage.

I thank you for your time this morning allowing me to speak to you. We are all looking forward to very informative workshop over the next two days.

I challenge everyone to do all they can to improve the safety of crane operations.